MT115-110 Video+Audio Dual TP Transmitter User's Guide

Welcome!

We greatly appreciate your purchase of the MT115-110 Output Expansion Card. We are sure you will find it reliable and simple to use. Superior performance for the right price, backed by solid technical and customer support is what ALTINEX has to offer.

We are committed to providing our customers with Signal Management Solutions® to the most demanding audiovisual installations at very competitive pricing and we welcome you to join the ranks of our many satisfied customers throughout the world.

1. Precautions and Safety Warnings

Please read this manual carefully before using your MT115-110 and keep it handy for future reference. These safety instructions are to ensure the long life of your MT115-110 and to prevent fire and shock hazards. Please read them carefully and heed all warnings.

1.1 General

- Qualified ALTINEX service personnel or its authorized representatives must perform all service.

1.2 Handling

- Handle the MT115-110 carefully. Dropping or jarring can damage the card.
- The MT115-110 contains components that are sensitive to electrostatic discharge (ESD). Always use ESD safety precautions when touching the card.
- To prevent fire or shock, do not expose this unit to water or moisture. Do not place the MT115-110 in direct sunlight, near heaters or heat-radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- Do not pull any cables that are attached to the MT115-110.

1.4 Cleaning

- Clean only the connector area with a dry cloth. Never use strong detergents or solvents such as alcohol or thinner. Do not use a wet cloth or water to clean the card. Do not clean or touch any component or PCB.

1.5 FCC Notice

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions found herein, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.
- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

2. Installation Procedures

Step 1. Determine the switch settings as shown or use Diagram 3 of the online user's guide. Software video gain adjustment is available with RS-232 control, or select hardware for a fixed gain of one.

See the online user's guide for RS-232 command details for gain and equalization control.

Step 2. Turn off power to the MultiTasker system and disconnect from AC power.

Step 3. Remove a slot cover (MT200-101) from one of the unused slots. Identify the slot number and note that it is for RS-232 control.

Step 4. Slide the MT115-110 into the enclosure in order to connect it to the bus. Make sure the card fits into place and then secure the card by tightening its retainer screws.

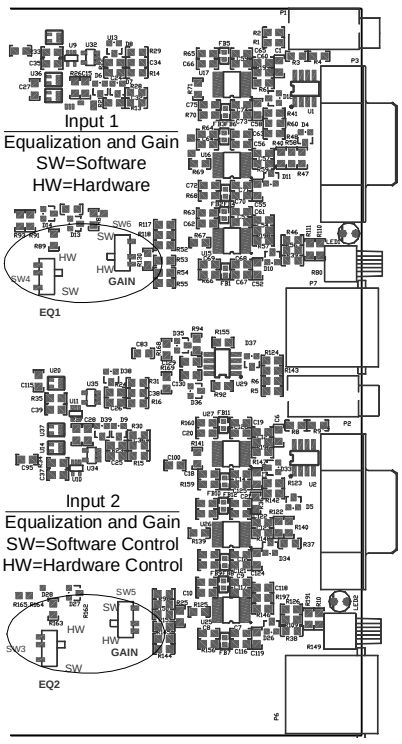
Step 5. Restore power to the enclosure. The LEDs for each input should be on and red.

Step 6. Connect the computer/component video and audio sources to Inputs 1 and 2. If a properly formatted input signal is available, the Input LED will turn green.

Step 7. Connect the 4TP outputs to the input of the 4TP receivers.

Step 8. The MT115-110 is now ready for operation.

Note: Video equalization is provided to fine-tune the displayed image on the remote display. Equalization adjustments on the transmitter and receiver work together. Start with both set to minimum (fully CCW) and adjust slowly while monitoring the remote image. Make the most precise adjustments on the receiver end closest to the video display.



3. Limited Warranty/Return policies

Please see the ALTINEX website at www.altinex.com for details on warranty and return policies.

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4. Technical Specifications

Specifications are subject to change. See www.altinex.com for up-to-date information.

Features/Description	MT115-110
Inputs	
Video	(2) 15-pin HD female
Audio	(2) 3.5 mm jack
Output	
CAT-5/6 Twisted Pair	(2) RJ-45 female
Compatibility	
Signal Types	ALTINEX Standard for Twisted Pair
Video Signal Resolutions	VGA through UXGA 480p through 1080i
Recommended Max. Cable Lengths *Note: Measurements made using ALTINEX low-skew cable, CB3150PV.*	VGA: 640x480@60Hz 900 ft (274 m) XGA: 1024x768@60Hz 700 ft (213 m) SXGA: 1280x1024@60Hz 650 ft (198 m) UXGA: 1600x1200@60Hz 600 ft (183 m)

Table 1. MT115-110 General

Mechanical	MT115-110
Enclosure Slots	One
Weight	0.5 lb (0.2 kg)
T° Operating	10°C-35°C
T° Maximum	50°C
Humidity	90% non-condensing
MTBF (calculations)	40,000 hrs (min.)

Table 2. MT115-110 Mechanical

Electrical	MT115-110
Video Input Signal	
Video Signal	1.1 Vp-p max
Video Impedance	75 ohms
SYNC Signal	TTL (+/-)
SYNC Impedance	10 kohms
Audio Input Signal	
Impedance	30 kohms
Level	1.0 Vp-p max
Twisted Pair Output	
CAT-5/6 Twisted Pair	Video/Sync/Audio Signals ALTINEX Standard
Video Resolution	VGA through UXGA 480p through 1080i
Power Consumption	*(from enclosure)*
+6V	0.495 A (3.0 W)
-6V	0.335 A (2.0 W)
Total Power	5.0 W max.

Table 3. MT115-110 Electrical

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5. About Your MT115-110

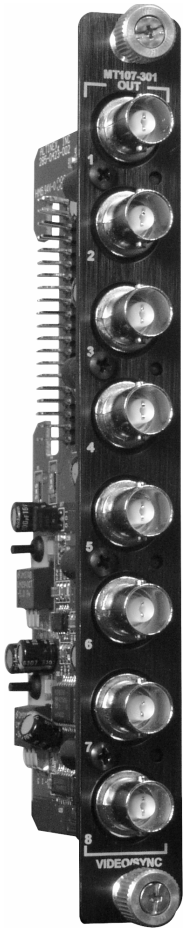
The MT115-110 provides a means of transmitting computer or component video and audio signals over Twisted Pair-type (CAT-5) cable when used together with an ALTINEX Twisted Pair Video Receiver, such as the MT115-111 or TP115-111.

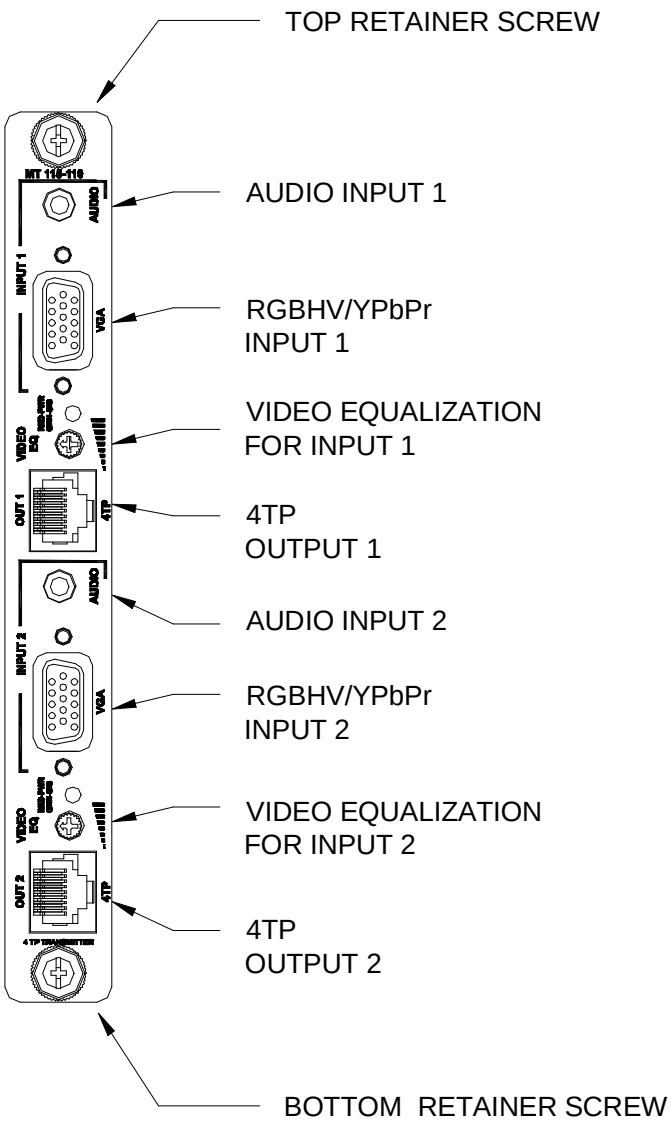
The MT115-110 offers two 15-pin HD female inputs with native Plug & Play compatibility and two 3.5 mm audio input jacks. The RJ-45 outputs provide distributed drive to Twisted Pair cables. The MT115-110 also offers video equalization for long cable lengths. The equalization adjustment may be set for either hardware or software (RS-232) control.

Additionally, the MT115-110 offers the option for video gain adjustments through RS-232 control or the gain may be set to a value of one for hardware control.

The latest generation of Twisted Pair devices uses an innovative, patented technology* developed by ALTINEX. The new signal processing technology allows transmitting and receiving fully equalized computer video signals, stereo, and audio signals over long distances.

* US Patent 7,065,190





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6. Application Diagrams

Diagram 1: Typical Setup

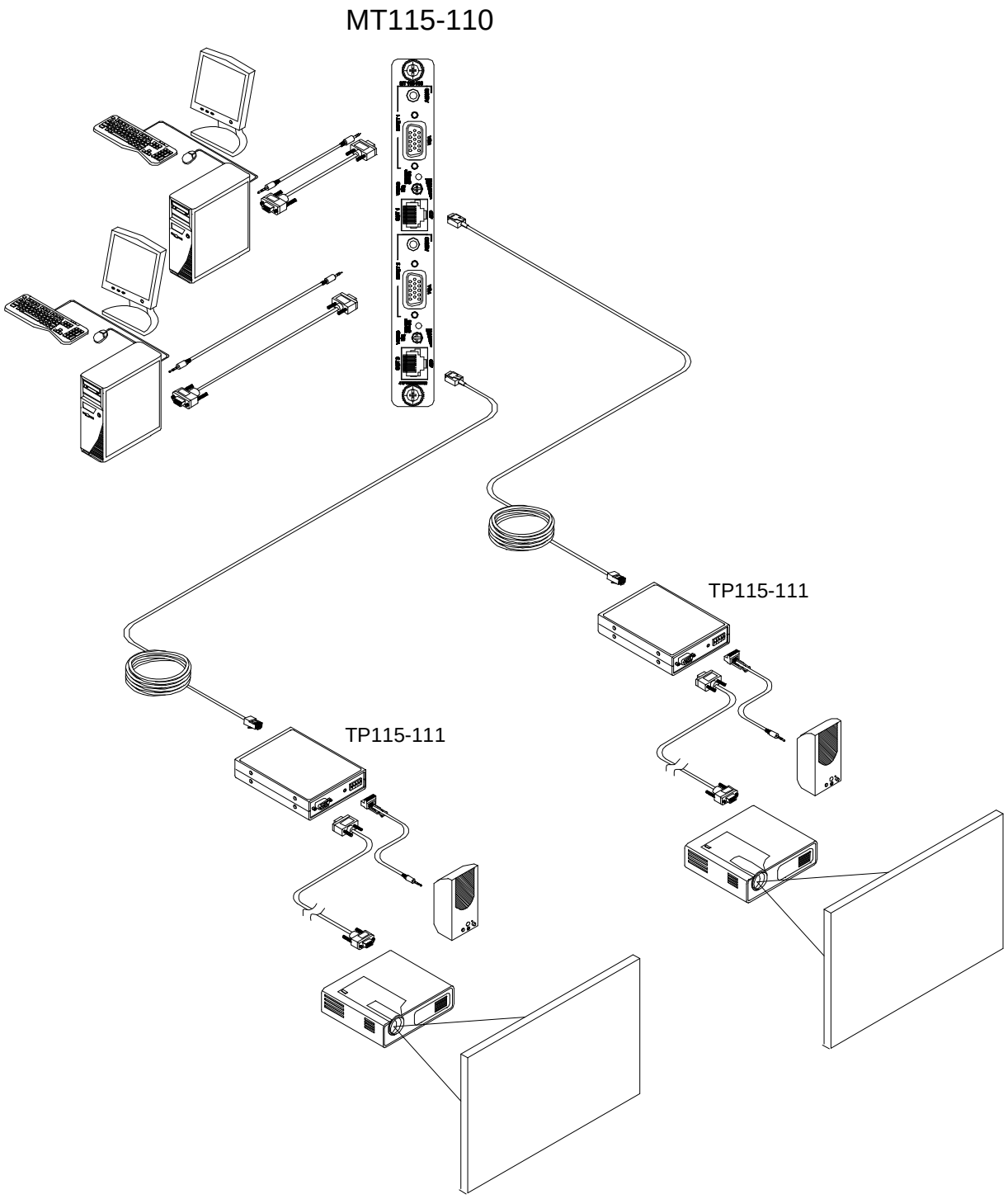

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Diagram 2: Internal View

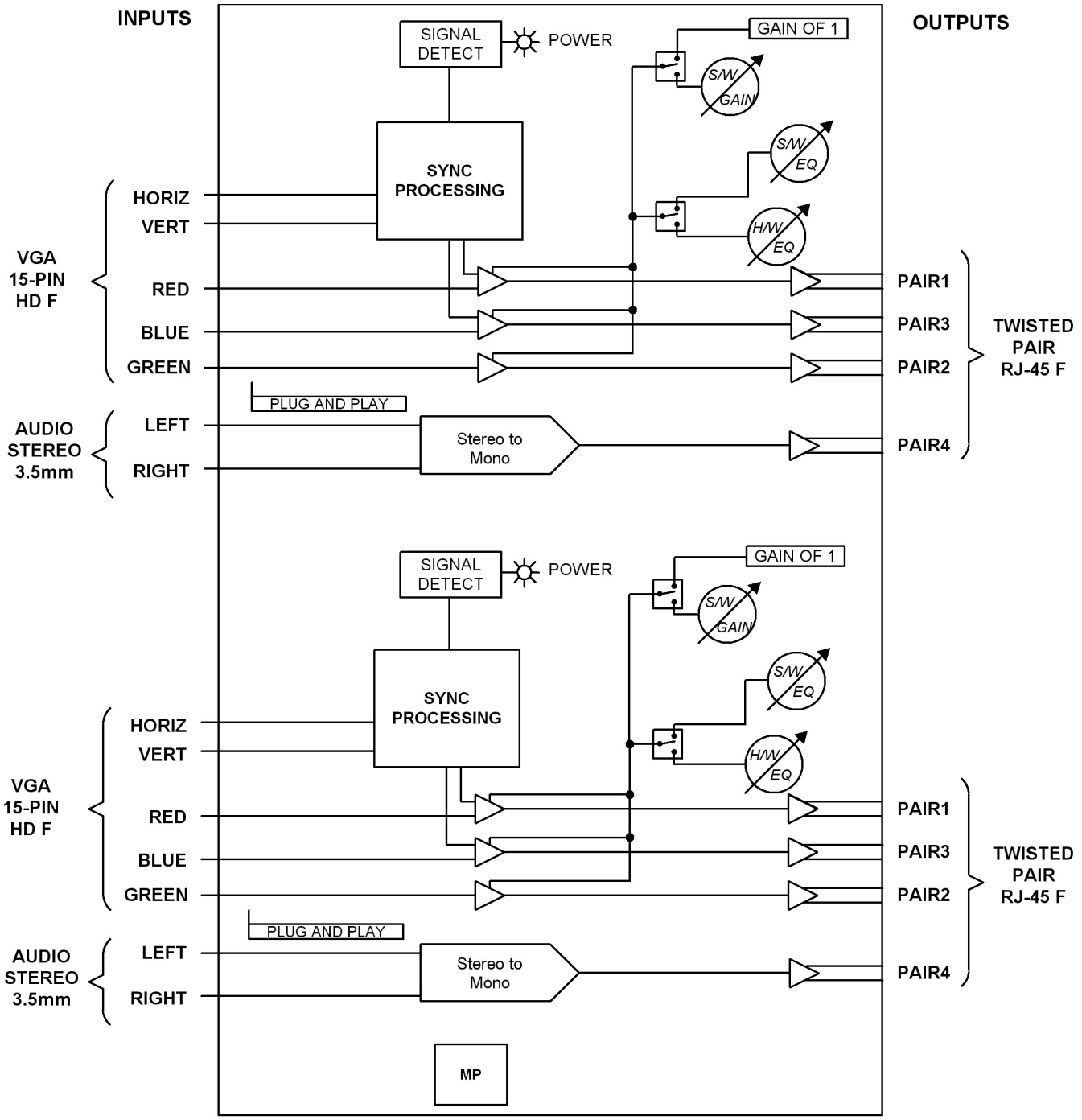

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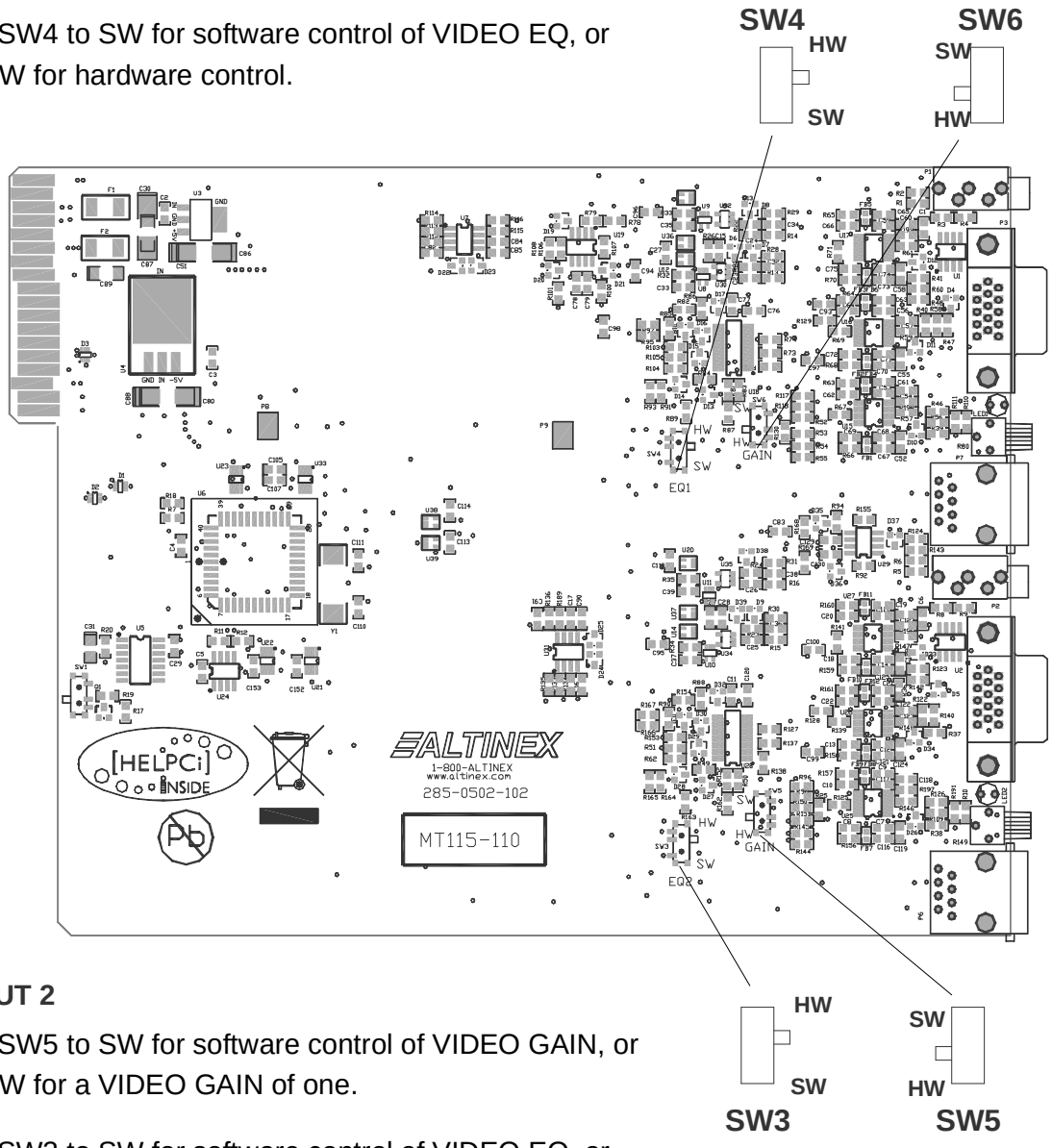
Diagram 3: Switch Settings

INPUT 1

Set SW6 to SW for software control of VIDEO GAIN, or to HW for a fixed VIDEO GAIN of one.

Set SW4 to SW for software control of VIDEO EQ, or to HW for hardware control.



INPUT 2

Set SW5 to SW for software control of VIDEO GAIN, or to HW for a VIDEO GAIN of one.

Set SW3 to SW for software control of VIDEO EQ, or to HW for hardware control.

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7. Operation

7.1 RS-232 Control

The MT115-110 has many advanced remote-control capabilities accessible through standard RS-232 communication using a computer, control system, or any device capable of RS-232 communication.

7.1.1 RS-232 Interface

The control commands are in a simple ASCII character format.

1. Square brackets "[ ]" are part of the command.
2. Use uppercase letters for all commands.
3. Spaces are NOT legal characters.

The cards in a MultiTasker are capable of performing various functions, as well as providing feedback to the user or control system. Commands instruct a card to perform specific actions or request information from the card. Some commands do both simultaneously.

A command that instructs the card only to perform an action will generate feedback of "[ ]". The open bracket immediately followed by a closed bracket indicates the card received a valid command. If the command requested information from the card, the feedback generated by the card is the acknowledgement of having received a valid command. Invalid commands generate feedback that includes "ERR" plus an error code.

Example 1:	[ERR001]	Error number
Example 2:	[ERRC04]	Card error C4

After processing a command, an "OK" or error will be returned as feedback if "F" is included at the end of a command string.

Commands ending in "S" will be saved into memory. Commands not ending in "S" will still be executed, but will not be restored when the system is reset or powered off, then on.

7.1.2 Conventions Used in this Manual

Card IDs:

In this manual, cards are referenced by their card ID; typically equivalent to the slot number:

C1, C2, C3, C4 ... C99

Group IDs:

Groups are referenced by their group ID:

G1, G2, G3 ... G8

Unit IDs:

Units are referenced by their unit ID:

U0, U1, U2 ... U20

Examples for each command in the following sections do not include the unit ID. Commands sent to a MultiTasker without a unit ID are executed by all MultiTaskers connected to the RS-232 bus. It is only necessary to include the unit ID when there is more than one MultiTasker connected to the bus and the command is intended for cards in that MultiTasker only.

[VERC3]:	Executed by all MultiTaskers on the RS-232 bus.
[VERC3U1]:	Executed by MultiTasker unit ID U1 only.

7.2 Description of Commands

Each command consists of three parts: Function, Card ID, and Unit ID.

[Function , Card ID , Unit ID **]**

Example: [VERC3U2]

VER	= Function
C3	= Card ID or Group ID
U2	= Unit ID (optional for Unit ID 0)

For Function, see a detailed explanation under each command description.

The card ID is a unique identifier. It is equal to the enclosure slot number, or it may be an assigned value. As the slot number, the value can range from 1-4 up to 1-20 depending on the enclosure. If the value is assigned, the ID may be a maximum of 99. Card ID 0 (C0) is used for the controller and cannot be reassigned.

The group ID is a number representing a group of cards defined with the [WR] command. When using the group ID, all cards in the group will perform the given instruction.

Changing the position of a card will significantly affect the commands recorded on software definitions or third-party control systems.

Example:

[VERC3]:	For U0 or ALL MultiTaskers on the bus.
[VERC3Ui]:	For IDs other than U0 or all MultiTaskers.
[VERC3]:	Equivalent to [VERC3U0] for U0.

Command Organization

The RS-232 commands in this section are organized into the following 5 categories:

Basic Commands

Feedback Control

Card Control

Card IDs

Groups

See the SUMMARY OF COMMANDS (Section 7.3) for one-line descriptions of each command.

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Basic Commands

The basic commands are used to provide general information about the card. These commands are most useful during the initial stages of setting up and operating the card.

1. **[VER]**

   This command displays the software version and card type for the MT115-110 card.

   Command Format: [VERCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Example:

   An MT115-110 card is in slot 4. Send the command [VERC4], and the system will return feedback similar to the following:

   [MT115-110 690-0231-003 C04]

   MT115-110 = Model number

   690-0231-003 = Firmware version

   C04 = Card ID/slot number

2. **[C]**

   This command displays the status of the card.

   Command Format: [Cn]

   Cn = Card ID (n = # from 1 to max slots)

   Example:

   There is an MT115-110 card in slot 4. Sending the command [C4] will yield feedback similar to the following:

   INPUT#1 NO SIGNAL
   VIDEO GAIN 4
   EQUALIZATION 32
   INPUT#2 NO SIGNAL
   VIDEO GAIN 4
   EQUALIZATION 32

   In this case, both card inputs are set for a video gain of 4 and an equalization of 32.

   If there is no card in slot 4, sending the [C4] command will not return any feedback.

3. **[CnS]**

   This command saves the card settings and displays the status. After the system is reset or powered off and on, the settings are restored.

   Command Format: [CnS]

   Cn = card number

   S = save configuration

   Example:

   Save the status by sending [C4S]. The feedback returned will be similar to the following:

   INPUT#1 NO SIGNAL
   VIDEO GAIN 4
   EQUALIZATION 32
   INPUT#2 NO SIGNAL
   VIDEO GAIN 4
   EQUALIZATION 32
   [SAVED]

4. **[...S]**

   This command saves the configuration command being sent in memory. When sending the command [EQ1=16C4S], after reset or power-up, the equalization for Input 1 will be set to 16. No other settings will be saved.

5. **[CLR]**

   This command clears the card settings and returns it to the factory default values:

   Video Gain = 4 (Input 1 and Input 2)

   Video Eq = 32 (Input 1 and Input 2)

   Command Format: [CLRCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Example:

   In order to clear the card in slot 4, send the command [CLRC4]. The card will respond with the following feedback when complete:

   FACTORY RESET COMPLETED

6. **[TEST]**

   This command performs a series of tests on the internal memory and displays a pass message if successful. Otherwise, failures are indicated.

   Command Format: [TESTCn]

   Cn = Card ID (n = slot # from 1 to max slots)

   Upon completion, the system will display the results. This feedback will be similar to the following:

   MEMORY IC TEST RESULTS:
   MEMORY IC PASS

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7. **[HELP]**

This command displays information available for MT115-110 control.

Command Format: [HELPCn]

Cn = Card ID (n = # from 1 to max slots)

Example:

In order to display the RS-232 commands available for the MT115-110 C4, send [HELPC4]. The commands along with a brief description will be displayed in the Terminal Window.

Feedback Control

The next commands are a function of both the card and the front panel and allow flexibility over when and how card information is displayed.

8. **[FBD]**

This command turns feedback delay on or off. It is necessary when installing newer cards in old systems. If the system does not receive all of the feedback from the card, the card may be communicating too fast. This command will slow down the card's communication rate.

Command Format: [FBDm]

m = Delay (0= no delay, 1= delay 100mS)

Example:

The command [HELPC4] is sent to the C4. Some of the HELP file is displayed, but most is missing. Send [FBD1] to slow down the rate at which the card sends feedback to the system.

9. **[?]**

This command returns general information about the MultiTasker and cards installed in the unit.

Command Format: [?Ui]

Ui = Unit ID (i = from 0 to 9)

Example:

A MultiTasker with unit U1 has a front panel part number MT101-101 and contains an MT103-122, MT103-123, and MT115-110. Send [?U1] and receive the following feedback:

[(MT101-101U1)(MT103-122C01)(MT103-123C02)(MT115-110C04)]

MT101-101U1 = Panel Number and Unit ID
MT103-122C01 = An MT103-122 is in slot 1
MT103-123C02 = An MT103-123 is in slot 2
MT115-110C04 = An MT115-110 is in slot 4

10. **[?C]**

This command returns general information about the card and its status.

Command Format: [?Cn]

Cn = Card ID (n = # from 1 to max slots)

Example:

The MT115-110 C4 has each input set to a gain of 4 and equalization of 32. Send [?C4] and receive feedback similar to the following.

[(MT115-110C04)(VR690-0231-003C04) (GN0404C04)(EQ3232C04)]

All status feedback is enclosed in brackets, "[ ]". Each data field within the status is enclosed in parentheses. The first two characters identify the status type. The last three characters are the card's ID.

MT115-110 = Card model number
VR690-0231-003 = Firmware version
GN0404 = Gain levels
EQ3232 = Equalization values

The gain and equalization settings are read from left to right. The first 2 digits are for Input 1 and the last 2 digits are for Input 2. In this case, both gains are set to 4 and both equalization levels are set to 32.

11. **[AFB]**

This command enables/disables the command acknowledgement feedback, "[ ]", from the MT115-110. This setting is automatically saved to memory and can only be changed by sending the [AFB] command a second time. Use this command when sending a large number of commands to one or more cards with no delays, or when repeatedly sending commands to one card with no delays.

If monitoring feedback to keep track of events, the [ACK] command is sent last and used to notify the system an event has occurred.

Command Format: [AFBmCn]

m = 1 = ON, 0 = OFF

Cn = Card ID (n = # from 1 to max slots)

Example:

Send several commands to C4 to initialize the card. The required commands are as follows:

[EQ1=1C4],
[GAIN1=4C4],
etc.

Send the [AFB] command first, and then the switching commands.

[AFB0C4],
[EQ1=1C4],
[GAIN1=4C4],
etc.
[ACKC4]

In the above example, the brackets, "[ ]", will not be displayed after each command is executed. However, in order to notify a user or controller that the last command has been executed, the [ACK] command is sent last. Since each command is executed in order, the [ACK] command is used to display the brackets, "[ ]", at the end of the command group.

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12. **[ACK]**

This command displays the open and closed brackets, "[ ]", and is intended for use when feedback is disabled.

Command Format: [ACKCn]

Cn = Card ID (n = # from 1 to max slots)

Example:

See the [AFB] example for details.

13. **[STA1]**

This command enables automatic feedback from the front panel. The command affects any card with auto-feedback capability, not just the MT115-110. The default at power on or reset is STA0, off. For more details, see the [?Cn] command definition.

Command Format: [STA1]

Feedback Prefix Definitions:

MT	Card model number
VR	Firmware revision
GN	Gain levels
EQ	Equalization values

Example 1:

Command = [GAIN1=10C4]

Feedback = (GN1004C04)

GN = Gain

1004 = Levels (IN1=10, IN2= 04)

C04 = Card ID/slot number

14. **[STA0]**

This command disables automatic feedback from the card and front panel. The command affects any card with auto-feedback capability, not just the MT115-110 card. The default at power on or reset is STA0, OFF.

Command Format: [STA0]

Card Control

Card control commands allow the main functions of the card to be executed over the RS-232 bus, or from the front panel's programmable keys.

15. **[SGD]**

This command tests for the presence of an input signal and displays the results:

[1] = Signal present
[0] = No signal

Command Format: [SGDmCn]

m = Input # (m = 1 or 2)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Check for an input signal on Input 1 by sending [SGD1C4]. The card returns "[1]" if a signal is present and "[0]" if there is no input signal.

16. **[EQ]**

This command displays the equalization setting for an input and selects that input for adjustment using the [+] and [-] commands.

Command Format: [EQmCn]

m = Input # (m = 1 or 2)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Display the equalization for Input 1 of C4, and then increase the level by 3 from a starting value of 12 to an ending value of 15.

Send [EQ1C4] and the current setting for Input 1 will be displayed.

[12]

Next, send [+] [+] [+] to increase the setting by 3. Send the [EQ] command again to receive new value.

[15]

17. **[EQ=]**

This command sets the equalization for an input to an absolute.

Command Format: [EQm=xCn]

m = Input # (m = 1 or 2)

x = Equalization level (x = # from 1 to 64)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Set the equalization on Input 2 of C4 to a value of 32 by sending the command [EQ2=32C4]. The card will respond with feedback of "[ ]" once the command is executed.

18. **[GAIN]**

This command displays the gain setting for an input and selects that input for adjustment using the [+] and [-] commands. A gain setting of 4 is equivalent to unity gain.

Command Format: [GAINmCn]

m = Input # (m = 1 or 2)

Cn = Card ID (n = slot # from 1 to max slots)

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Example:

Display the gain setting for Input 2 of C4, then decrease the gain level by 3 from a starting value of 10 to an ending value of 7.

Send [GAIN2C4] and the current setting for Input 1 is displayed.

[10]

Next, send [-] [-] [-] to decrease the setting by 3. Send [GAIN2C4] again to display the new value.

[7]

19. **[GAIN=]**

This command sets the red, green, and blue channel gain levels to an absolute level. A gain setting of 4 is equivalent to unity gain. The gain is adjustable from approximately 50-150% of the input level.

Command Format: [GAINm=xCn]

m = Input # (m = 1 or 2)

x = Gain level (m = # from 1 to 11, 4=unity)

Cn = Card ID (n = slot # from 1 to max slots)

Example:

Set the gain for Input 2 of C4 to 4 by sending [GAIN2=4C4]. The card responds with feedback of "[ ]" once the command is executed.

ID Commands

The default card ID is the same as the card slot number. The next several commands allow the user to change the card ID to a value other than the slot number. Once the ID is changed, moving the card to another slot will not change the card ID. If a card in slot 4 is set to ID 1, then moved to slot 10, its ID will remain 1. The [RSI] command forces each installed card to take its slot number as its ID number, regardless of the slot in which it is installed.

Some cards require more than one slot in the MultiTasker system. As an example, some matrix switcher cards require 4 slots. If 5 of these cards are installed, they would be numbered C4, C8, C12, C16, and C20. Changing the ID allows the user to define the cards as C1, C2, C3, C4, and C5.

Another use for changing the card ID is to be able to use multiple systems without having to set each unit to a different unit ID. All systems may be left as unit ID 0 for ease of programming. The cards in the first unit may be numbered 1-10 and in the second unit 11-20.

20. **[RSI]**

This command resets the card IDs in the system. After sending this command, each card ID in the system equals the card slot number. If the card is moved to a new slot, its ID number is the new slot number.

Command Format: [RSI]

Example:

Send [RSI] to U0. Now the card in slot 1 is C1, the card in slot 2 is C2, and so on. If C1 is moved to slot 4 its ID is C4.

21. **[SIDn]**

This command sets the ID of all cards in an enclosure to the same ID. After sending this command, all cards are addressed with the same ID. Use caution when a system with multiple board types.

Command Format: [SIDn]

n = Card ID (n = # from 1 to 99)

Example:

Send [SID1] and all the cards in the system have ID 1. Any commands sent to C1 are received and executed by all cards.

22. **[SIDnCi]**

This command sets a card ID to a number from 1-99.

Command Format: [SIDnCi]

n = Card ID (n = # from 1 to 99)

Ci = Slot Number (i = # from 1 to max slots)

Example:

Send [SID50C10] to set the ID of the card in slot 10 to an ID of 50.

23. **[SID+]**

This command sets the card ID of all cards in a system to their slot number plus an offset value.

Command Format: [SID+n]

n = Offset amount (n = # from 0 to 99)
The maximum card ID is 99, so subtract the highest slot number from 99 to find the maximum offset. For example, in an 8-slot enclosure, the maximum offset would be 91.

Example:

There are two 20-slot enclosures connected together for normal operation. The first unit uses the default IDs (card ID=slot number) and the second unit uses the slot number+20. Connect the computer to the second unit only and send [SID+20] to set the ID of all cards in the second enclosure to their slot number plus 20. Reconnect both units to the computer. The cards in the first unit will be referenced as card IDs 1-20 and the cards in the second unit will be referenced by card IDs 21-40.

24. **[RSN]**

This command displays the slot number of a card with a specified ID. If more than one card has the same ID, each will be displayed.

Command Format: [RSNCi]

Ci = Card ID (i = # from 1 to 99)

Example:

C4 takes up 4 enclosure slots so its ID is set to C1 since it is the first card in the system, reading from left to right. Send [RSNC1] to find the physical slot and the system responds with the following:

[4]

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Group Commands

Group commands allow several cards with the same functions to be controlled simultaneously with a single command. Up to 8 groups (G1-G8) may be defined. These commands apply to all cards, not only the MT115-110.

25. **[WR]**

This command adds cards to a group. In MultiTasker systems with audio and video cards, the groups are typically as follows:

Group 1 = Video Cards

Group 2 = Audio Cards

Group 3 = Video and Audio Cards

Command Format: [WRCn1Cn2…Gk]

Cn = Card ID (n = slot # from 1 to max slots)

Gk = Group ID (k = # from 1-8)

Example:

Add C2, C4, and C6 to G5 by sending the command [WRC2C4C6G5]. After executing this command, G5 will consist of C2, C4, and C6.

Now add C8 to G5 by sending [WRC8G5]. C8 is added to G5, and G5 is not overwritten. View the contents of G5 by sending [RDG5] and receiving the following feedback:

[G5=C2C4C6C8]

26. **[RMC]**

This command removes one or more cards from a group.

Command Format: [RMCn1Cn2…Gk]

Cn = Card ID (n= # from 1 to max slots)

Gk = Group ID (k = # from 1-8)

Example:

G5 consists of C2, C4, C6, and C8. Remove C6 and C8 by sending [RMC6C8G5]. View the contents of G5 by sending [RDG5] and receiving the following feedback:

[G5=C2C4]

27. **[RMG]**

This command deletes one or all groups.

Command Format: [RMGk]

Gk = Group ID (k = # from 1-8, * for all)

Example:

Remove all cards from G52 by sending [RMG5]. The system will return the following feedback:

[G5=0]

Example 2:

Remove all cards from all groups, effectively deleting all groups, by sending [RMG*]. The system will return the following feedback:

G1-G8: EMPTY

28. **[RD]**

This command reads and then displays the members in a group.

Command Format: [RDGk]

Gk = Group ID (k = # from 1-8)

Example:

C2, C4, and C6 make up G5. Read the member data for G5 by sending the command [RDG5]. The system will return feedback as follows:

[G5=C2C4C6]

The feedback shows G5 and then the cards that make up G5. In this case, G5 includes C2, C4, and C6.

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7.3 Summary of Commands

Basic Commands

1)	[VER]	Display firmware version
2)	[C]	Display card status
3)	[CnS]	Save card settings
4)	[...S]	Save command setting
5)	[CLR]	Reset card to defaults
6)	[TEST]	Test memory ICs
7)	[HELP]	Display available commands

Feedback Commands

8)	[FBD]	Feedback delay on/off
9)	[?]	Display system cards
10)	[?C]	Display card information
11)	[AFB]	Enable/disable feedback
12)	[ACK]	Display acknowledge, [ ]
13)	[STA1]	Auto-feedback on
14)	[STA0]	Auto-feedback off

Card Control Commands

15)	[SGD]	Signal detect
16)	[EQ]	Display/select equalization
17)	[EQ=]	Set equalization level
18)	[GAIN]	Display/select video gain
19)	[GAIN=]	Set video gain level

ID Commands

20)	[RSI]	Reset Card IDs
21)	[SIDn]	Set all Card IDs
22)	[SIDnCi]	Set one Card ID
23)	[SID+n]	Set Card ID offset
24)	[RSN]	Read Card slot number

Group Commands

25)	[WR]	Group multiple cards
26)	[RMC]	Remove members from group
27)	[RMG]	Delete group
28)	[RD]	Display group members

7.4 Menu Mode

Menu Mode commands allow virtually the same functionality as programming commands. Unlike the programming commands in the previous sections, menu commands prompt the user to select from a list of available options. The system then responds based upon selections made by the user.

7.4.1 Menu Command Definitions

Refer to section 7.2 for details on card functions and examples. Following is a cross-reference of menu mode sections versus programming commands.

Menu	Commands
Equalization	[EQ]
Gain	[GAIN]
Save	[CnS]
Reset	[CLR]
Version	[VER]
Status	[C]
Help	[HELP]

7.4.2 Using Menu Mode

Do NOT press any keys except those relating to the current menu. If you press the ENTER key after entering a letter or digit, the original list of systems will be displayed.

1. In order to enter Menu Mode, the system needs to be connected to a computer running RS-232 control software.
2. In the Terminal Window, press the ENTER key on the keyboard.
3. The system checks all MultiTaskers on the RS-232 bus and displays a list of available systems.

   Example: 1: U1
   2: U2
   3: U3
4. Enter the ID number of the desired system. In the example above, enter a "1" for the MultiTasker with unit ID 1.

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5. The system then interrogates all the cards available in its enclosure and displays a list of available cards.

   Example: 01: MT103-122
   02: MT103-123
   04: MT115-110

6. Enter the 2-digit ID and a menu for the card will be displayed. In the example above, enter "04" for the MT115-110.
7. The system will prompt for selections specific to the selected card.
8. Read each menu carefully, and continue selecting keys as prompted.

Note: Menus for data entry have two prompts: "Key=" and "ESC" (escape). Enter the selection at the "Key=" prompt, or press escape to return to the previous menu.

7.4.3 Menu Types

1. Main Menu
   The first menu displayed after selecting the card is the Main Menu. This menu provides access to the key functions related to the card. Press the key representing the menu item for access and a sub-menu will appear.
2. Sub-Menus
   Each menu item will display either a sub-menu, or a list of options. Press the key corresponding to the desired choice.

7.4.4 MT115-110 Menus

Following are the menus available to the MT115-110. The first menu is the Main Menu only. The second listing is an expanded view of the card's sub-menus.

The expanded menu contains values that indicate the current setting or value of a parameter. The value is usually in parentheses, or otherwise indicated at the top of a sub-menu. In some cases, additional comments are provided for clarification and are not part of the menu feedback.

MT115-110 Main Menu

1: EQUALIZATION CONTROL

2: GAIN CONTROL

3: SAVE CONFIGURATION

4: RESET CONFIGURATION TO DEFAULT

5: VERSION

6: STATUS

7: HELP

MT115-110 EXPANDED MENUS

1: EQUALIZATION CONTROL
  EQUALIZATION CONTROL
  1: INPUT#1 32
    EQUALIZATION CONTROL INPUT#1 (32)
    1: INCREASE EQ LEVEL
    2: DECREASE EQ LEVEL
  2: INPUT#2 32
    EQUALIZATION CONTROL INPUT#2 (32)
    1: INCREASE EQ LEVEL
    2: DECREASE EQ LEVEL
2: GAIN CONTROL
  GAIN CONTROL
  1: INPUT#1 4
    GAIN CONTROL INPUT#1 (4)
    1: INCREASE GAIN LEVEL
    2: DECREASE GAIN LEVEL
  2: INPUT#2 4
    GAIN CONTROL INPUT#2 (4)
    1: INCREASE GAIN LEVEL
    2: DECREASE GAIN LEVEL
3: SAVE CONFIGURATION
  SAVE CURRENT CONFIGURATION?
  1: YES
  2: NO
4: RESET CONFIGURATION TO DEFAULT
  RESET CARD TO FACTORY DEFAULT?
  1: YES
  2: NO
5: VERSION
  This selection displays the firmware version and then redisplays the Main Menu.
6: STATUS
  This selection displays the card status and then redisplays the Main Menu.
7: HELP
  This selection displays the RS-232 commands for the MT115-110 with a brief description.
ESC
  This selection returns to the list of cards.

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7.4.5 Menu Mode Examples

All Menu Mode examples assume an MT115-110 is installed in slot 4 of unit ID 1.

NOTE: The communication software you use may echo each character as it is typed when entering numeric values (not selecting menu items). For example, entering a value of 03 may appear as 0033 on the screen.

1. Set Video Equalization

Follow the keystrokes below to set the video gain for Input 1 to 4 with a starting level of 8.

Enter	List available systems
1	Show cards in U1
04	Select MT115-110 in slot 4
2	Select GAIN CONTROL
	The current gain level for each input will be displayed.
1	Select INPUT #1 for adjustment
2222	Select decrement 4 times
	After each decrease, the new level will be displayed.
ESC	Return to GAIN Menu
ESC	Return to the Main Menu

2. Display Card Status

Starting from the MT115-110's Main Menu, follow the keystrokes below.

6	Display card status

NOTE: The status will be displayed, followed by the Main Menu being redisplayed.

8. Troubleshooting Guide

We have carefully tested and found no problems in the supplied MT115-110 unit. However, we would like to offer the following suggestions:

8.1 LEDs are Off

Cause 1: There is no power to the card.

Solution 1: Make sure the card is plugged all the way into the enclosure. If an LED is still not on, see Cause 2.

Cause 2: The card is not initialized.

Solution 1: Turn the system power off and then back on again. If one of the LEDs is still not on, please call ALTINEX at (714) 990-2300.

8.2 Display is Too Bright

Cause 1: The software gain is too high.

Solution: Set the gain control to 4 using the RS-232 commands in Section 7.2. If the display is still too bright, see Cause 2.

Cause 2: The gain switch is not set correctly.

Solution: Set the gain control switch to the HW (hardware) position for a fixed gain of one. If the display is still too bright, see Cause 3.

Cause 3: The receiver video gain is too high.

Solution: Set the gain control switch to the HW (hardware) position for a fixed gain of one. If the display is still too bright, please call ALTINEX at (714) 990-2300.

8.3 No Display

Cause 1: The source has a problem.

Solution: Check the source and make sure that there is a signal present and all source connections are correct. If the source is working and there is still no display, see Cause 2.

Cause 2: Signal is bad or missing.

Solution 1: Make sure the output is connected to the TP receiver. If there is still no display, see Solution 2.

Solution 2: Bypass the MT115-110 and TP receiver and connect the output of the source directly to the monitor. If the display is good, then call ALTINEX at (714) 990-2300. If there is still no display, see Cause 3.

Cause 3: Cable connections are incorrect.

Solution: Make sure the cables are properly connected. Also, make sure that the continuity and wiring are good. If there is still no display present, see Cause 4.

Cause 4: The display has a problem.

Solution: Make sure the display is powered and is turned on. If there is still no display, call ALTINEX at (714) 990-2300.

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